ABSTRACT OF THE DISCLOSURE

5   In a direct sequence spread spectrum receiver an "as received" signal is decoded by correlation. Phase shift key, complementary code key modulated signals are correlated by transforming samples of the signal in a series of butterfly transform processors producing a number of correlations equal to the number of possible transmitted codewords. The largest correlation is selected as the

10   transmitted signal. To reduce the number of processors required to transform a multi-level phase shift key signal, a correlation method and apparatus are disclosed wherein the butterfly transforms are modified with additional twiddle factors selected from a set of twiddle factors. In the alternative, the inputs to the butterfly processors of a correlator can be weighted as a function the additional

15   twiddle factors. A set of signal samples is correlated for each combination of the set of additional twiddle factors and the largest correlation selected as the signal.